



Eclampsia

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DO YOU KEEP CHRISTMAS

"Are you willing to stoop down and consider the needs and desires of little children; to remember the weakness and loneliness of people who are growing old; to stop asking how much your friends love you, and to ask yourself whether you love them enough; to bear in mind the things that other people have to bear in their hearts; to trim your lamp so that it will give more light and less smoke, and to carry it in front so that your shadow will fall behind you; to make a grave for your ugly thoughts, and a garden for your kindly feelings, with the gate open - - are you willing to do these things even for a day?

Then you can keep Christmas."

Contributed by
H. S. Diehl

* * * * *

I. ABSTRACTECLAMPSIA

J. E. Hynes, Jr.

Eclampsia is an acute toxemia occurring in the pregnant, parturient, or puerperal women, usually accompanied by clonic or tonic convulsions followed by more or less prolonged coma.

Frequency

Various observers give an average of about 1% of all obstetrical hospital patients suffering from eclampsia. If both home and hospital obstetrical cases are considered, the frequency would certainly be much lower. Williams states that eclampsia occurs once in every 500 labors. It is known to be more frequent in primipara than in multipara. Hinselmann stated that about 1.5% of all cases of eclampsia occur in primiparae and 0.25 of 1% in multiparae. It is known to be more frequent in multiple pregnancies, Hinselmann stating that it occurs five

times as frequently in multiple pregnancies as in single pregnancies. It may recur in the subsequent pregnancies of the patient but it is unlikely to do so. Only 1.92% of eclamptics are recurrent.

Etiology

The etiology is unknown. Eclampsia has been called the disease of theory and the various theories are so well known that there is no reason for reiterating them here.

Pathology

The chief pathological changes found at postmortem are in the liver, brain, heart and kidneys. The liver grossly shows a hemorrhagic mottled appearance due to areas of necrosis about the periphery of the liver lobules. This lesion is considered characteristic of eclampsia by most observers. The brain, as a rule, shows edema, hyperemia, thrombosis of the smaller vessels and occasionally apoplexy. The heart is reported to show degenerative processes in the myocardium. The kidneys show degenerative changes in the glomerulae and the convoluted tubules. The basement membrane of the glomerular capillaries shows an extreme thickening. The change is reversible and disappears after recovery.

Symptoms

There are certain cases of so-called "fulminant eclampsia" which develop suddenly in a normal pregnancy without any toxic signs or symptoms and which progress rapidly to a state of eclampsia with convulsion within 24 or 48 hours. These cases are an exception. As a rule, eclampsia is a toxemia of late pregnancy, usually occurring in the last six weeks. The disease has been reported as early as 3½ months and we are reporting in this bulletin one case of eclampsia occurring in the 4th month of pregnancy.

As a rule, most cases of eclampsia are preceded by a prodromal period called "pre-eclampsia." That is, those of "pre-eclampsia" consist in general of an elevation of blood pressure, albuminuria,

water retention in the tissues manifested at first as an unusual weight gain and later as clinical edema. The symptoms are many, the chief ones apparently are on the basis of edema of the various organs: headaches, visual disturbances (scotomata, blurring of vision and complete blindness), oliguria (often noticed), epigastric pain (one of the late symptoms and usually looked upon as a forerunner of a convulsion).

In order to better understand the chemical and physical changes taking place in the toxemias of pregnancy, it is necessary to briefly cite some of the changes taking place in a normal pregnancy.

(1) Weight

The usual weight gain varies between 15 and 25 pounds up to the third day before labor when the weight loss begins. The loss usually amounts to about 2 pounds in the three days before labor sets in.

(2) Laboratory findings

Protein metabolism: There is a definite gain in nitrogen by the mother during pregnancy, a positive nitrogen balance being maintained during the last one-half of pregnancy.

There is a relative increase in serum globulin from the third month on and an actual increase in fibrinogen. The nonprotein nitrogen shows no change. The urea nitrogen is usually slightly lower in pregnancy. The total nitrogen excretion in the urine is decreased in the later one-half of pregnancy. Creatinin may appear in the urine in the latter one-half of pregnancy but is not always found.

Fat metabolism: There is an increase in lipoids in the last one-half of the pregnancy up to 900 mgs. per 100 cc. of blood.

Carbohydrate metabolism: The blood lactic acid is probably increased. There is a normal blood sugar and tendency to acetonuria. Glycosuria is not uncommonly noted, probably due to a

lowered renal threshold.

Mineral metabolism: The calcium, phosphorus and iron which the fetus requires for its development are taken to a large extent from the mother. Both the blood calcium and phosphorus are lower in pregnant than in a non-pregnant woman. The values average around 9.8 mgs. per 100 cc. of blood for the calcium and 3.3 mgs. per 100 cc. of blood for the phosphorus. According to the studies of Hasselbach, the alveolar carbon dioxide is lowered as early as the second month of pregnancy. The carbon dioxide combining power of the blood is lower. The P_H of the blood is normal. The serum base is usually said to have decreased about 5%.

The basal metabolism is increased slightly during pregnancy. The average value given is 4% increased with occasional observers reporting increases up to 30%.

The neurovascular system: Dermatographia and capillary spasm are commonly seen in pregnant women.

(3) Endocrine system

The thyroid enlarges during pregnancy. The parathyroids are enlarged. The ovaries show the corpus luteum of pregnancy with suppression of follicular rupture. The adrenals show hypertrophy of the cortex. The pituitary shows slight hypertrophy of the anterior lobe. The blood volume increases, the blood becoming more dilute and the specific gravity decreases. The heart output is increased.

Many of the above changes are greatly accentuated in the toxemias of pregnancy. Some of the chemical changes in the urine in toxemia which are more commonly found are: lowered urea nitrogen, elevated ammonia nitrogen, occasional acetonuria, and proteinuria up to 40 grams per liter. The blood uric acid is increased, usually 5 mgs. per 100 cc. or over. Stander has reported hyperglycemia which although it has been questioned by other workers seems to be fairly well authenticated. There is also a decreased carbon dioxide combining

power, elevated lactic acid and increased chlorides especially in the presence of edema. Stander reports increased blood phosphorus and decreased calcium to phosphorus ratios.

Course of eclampsia

The disease usually starts as a mild toxemia with moderate elevation of blood pressure and a slight amount of albuminuria. Often, the first warning sign of toxemia is a rapid excessive weight gain. Adair notes that patients with slightly elevated blood pressure early in pregnancy - systolic values of 120 to 130 in the first trimester are more likely to develop toxemia in late pregnancy than those with lower blood pressure. In an untreated case, the symptoms are progressive with increasing edema, increasing albuminuria and rising blood pressure. The patients often complain of headache, scotomata, blurring vision or blindness and oliguria. Epigastric pain, excruciating headache, total blindness and muscular irritability are the late signs of pre-eclampsia usually thought of as the precursors of a convulsion. Some patients never develop edema during the course of toxemia and this is usually regarded as a more severe type with a poorer maternal prognosis than that which is associated with edema. The theory is offered that the edema removes some of the toxins from the blood stream and holds them in the fluid in the tissue spaces. The eyegrounds in pre-eclampsia or in a case of eclampsia will show some or all of the following findings: spasm of the vessels, retinal edema, sometimes detachment of all or part of the retina, hemorrhages or exudates. The latter are signs of an extremely severe toxemia.

The occurrence of "eclampsia state" itself is heralded by convulsions. The eclampsia may be one of three varieties: antepartum, intercurrent and postpartum. In the "antepartum" type, the convulsions occur before the onset of labor. Fifty per cent of all cases of eclampsia are of this variety. Intercurrent eclampsia with a convulsion occurring during labor makes up 25% of the total and postpartum eclampsia with a convulsion coming on after delivery makes up another 25%. The convulsions are characterized by dilated pupils, fixed eyes, twitching

about the face, tonic and clonic contractions of all the body musculature, foaming at the mouth, biting the tongue, and incontinence. Convulsions are almost always followed by a rather deep coma of variable duration. The blood pressure in eclampsia usually ranges to a systolic of 200 and a diastolic of 90. The albumin is usually 5 to 40 grams per liter by quantitative test. The eyeground examination has already been cited. The temperature is usually normal or slightly elevated but may rise as high as 105.

The prognosis becomes poor with increasing number of convulsions (up to 20 and 30) although recovery has been reported by Jardine after 200 convulsions. Patients frequently die after one convulsion. The physical examination of an eclamptic patient characteristically reveals a woman either in convulsions or in coma with markedly elevated blood pressure, marked albuminuria, eyegrounds showing fairly characteristic changes (described above), slight to marked edema of the face, hands, legs and abdomen. The blood chemistry examination, as a rule, shows an elevated uric acid, normal nonprotein nitrogen, normal or elevated blood sugar, and high chlorides (especially in the presence of edema). The carbon dioxide combining power is usually lowered.

The differentiation from a nephritic toxemia with convulsions is oftentimes impossible to make but when made is usually done on the basis of a preceding history of nephritis or an elevated blood nonprotein nitrogen or the typical eyeground findings of chronic nephritis. When it is impossible to make a differential diagnosis between a nephritic toxemia and an ordinary toxemia of pregnancy, the case must be followed after delivery for a long period of time to determine whether or not all signs and symptoms will completely clear up (eclampsia) or whether the patient will show a residual albuminuria and hypertension (nephritis).

The second differential point is epilepsy. In epilepsy, there is usually a history of preceding epileptic convulsions occurring between pregnancies. The blood pressure, as a rule, is normal

and the urine shows no albumin. There are no preceding toxic signs. Occasionally, a true epileptic also has a mild pre-eclamptic toxemia and will show some albuminuria and an elevated blood pressure and probably some edema, making in such cases the differentiation of pre-eclampsia and eclampsia from epilepsy extremely complicated. Eclampsia must be occasionally differentiated from poisoning, e.g. strychnine poisoning, in which case the same criteria as in epilepsy are used.

Prognosis

Eclampsia is grave for both the mother and child. The fetal mortality is between 30 and 50%. The fetus apparently shares the toxemia to some extent. The children do not do well even when born alive. Convulsions have been reported in infants delivered of an eclamptic mother. The maternal mortality averages about 20%. The conservative handling of eclampsia gives a much better result than the radical treatment. Plass, in reporting 10,000 cases, found 4,607 cases treated radically with 21.7% mortality and 5,976 cases treated conservatively with 11.1% mortality. Stroganoff, in his last 300 cases treated personally, had a corrected maternal mortality of .3 of 1% with a gross maternal mortality of 2.6%. Williams states that the worst possible treatment of eclampsia is the routine employment of Caesarean section under general anesthesia. This gives the highest maternal mortality of all.

The poor prognostic signs in eclampsia are prolonged coma, pulse of 120 and over, temperature of 103 and over, blood pressure of over 200 systolic, 10 or more convulsions, over 10 grams of albumin to a liter of urine, lack of edema, anuria and edema of lungs. These patients may die in convulsions, pulmonary edema, cardiac failure, apoplexy, uremia when amuric, puerperal sepsis, hemorrhage and shock, or of aspiration pneumonia.

As a general rule, the patients who do not die recover completely. If a patient suffered a cerebral accident during eclampsia and recovered, there persists more or less permanent cerebral damage depending on the extent and location of the lesion. If retinal detachment occurs,

it may be very slow to clear up. Occasionally, cases are reported in which kidney damage follows eclampsia. Other than that, the ultimate prognosis is fairly good.

Treatment

The intelligent treatment of pre-eclampsia will prevent most cases from developing further although some few cases of fulminant eclampsia cannot be prevented. Although this abstract deals only with eclampsia, the two conditions, eclampsia and pre-eclampsia, are so closely allied that the treatment of pre-eclampsia will be briefly outlined here.

Prenatal care is extremely important as a means of discovering the early cases of toxemia. Patients should be seen at least every month during the first six months of pregnancy, twice a month during the seventh and eighth and at least once a week during the last month of pregnancy, and more often if any toxic signs have been discovered at any time. At each prenatal visit, the patient should be weighed, the blood pressure taken and an urinalysis done in addition to the other things which may be indicated. She should also be carefully questioned at each visit as to toxic symptoms she may have experienced. Foci of infection in the pregnant woman are believed by La Vake to be very important in the production of toxemia and should be carefully eradicated in all women seen early in pregnancy. After toxic symptoms develop, the usual treatment is complete bed rest with sedatives as necessary for rest and sleep, increasing the elimination by catharsis and diuresis, the saline cathartics being especially favored. If edema is present, the total fluid intake is restricted. The diet is usually restricted, occasionally a strict milk diet being used for a few days. Most observers still feel that a low protein salt free diet should be given to patients with toxemia of pregnancy but many are now giving high protein diet in the face of any marked albuminuria. If the patient does not improve on conservative treatment or if having improved begins to get worse again, or if pre-

monitory signs of eclampsia arise such as epigastric pain, severe headache, etc., labor should be induced by conservative methods. Medical induction (castor oil and quinine for example) should be attempted first as a rule and if this fails induction by bougies or bags should be done. This is necessarily only a brief summary of some of the points in the treatment of pre-eclamptic toxemia.

In the treatment of eclampsia itself, as was stated in the discussion on prognosis, the conservative treatment of eclampsia gives much better results statistically than the radical treatment. Venesection has been used since early times and is still useful in cases with marked hypertension or rapid progress of symptoms. Accouchment forcé and vaginal Caesarean section were used toward the end of the nineteenth century with about 30% mortality. Abdominal Caesarean section is still being used with a variable mortality usually 20% or over. Veratrum viride was formerly rather popular as it caused spectacular fall in blood pressure but is no longer being used by many clinics. Kidney decapsulation was recommended by Edebohls but has not been used very often. It is said to be attended with a rather high mortality. Lumbar puncture has been recommended to relieve brain edema.

The use of normal pregnant serum, i.e. serum from pregnant women not suffering from toxemia, has been recommended but has proved rather disappointing. Irving of Boston has recommended plasmapheresis, withdrawing the patient's blood, centrifuging the blood, resuspending the cells in saline and injecting the saline suspension of cells. This serves the double purpose of venesection and increased elimination. It has not gained wide enough popularity so that any definite opinion as to its efficiency can be given. The use of heparmone (liver extract) on the supposition that the toxemia is due to a liver deficiency has been recommended but is not widely used. Intravenous glucose with or without insulin is usually used to combat acidosis. Some have recommended the use of sodium bicarbonate, intravenously for the same purpose. The use of intravenous sodium amytal is rather popular. It is a powerful sedative and

causes a fairly marked fall in blood pressure. It is not often employed in this clinic.

The radical treatment of eclampsia is usually taken to mean the employment of Caesarean section with toxemia as the only indication.

The conservative treatment may be one of four rather generally accepted types: (1) Venesection method, withdrawal of 700 to 1,000 cc. of blood, followed by the induction of labor by conservative means and no operative interference until the cervix is fully dilated. (2) Magnesium sulphate method in which magnesium sulphate is given in 20 cc. doses of 10% solution every four hours. This acts as a diuretic, tends to decrease edema and is a fairly efficient sedative. In the magnesium sulphate method, no operative interference is carried out until the cervix is fully dilated. (3) The Dublin method, used in Rotunda Hospital in Dublin, consists of starvation, colonic flushing and gastric lavage. Solomon also employs morphine in addition to the other features of the Dublin method, as stated in his personal communication to Williams. (4) The Stroganoff method which is quite widely used was devised by Stroganoff under the assumption that eclampsia was an infectious self-limited disease. Acting on this theory, he worked out a rigid procedure using sedatives to control convulsions and not interfering until full dilation had been obtained. Stander warns very strongly against the employment of general anesthesia in eclampsia. He states that when Caesarean section is necessary for the delivery of an eclamptic woman because of some other reason, such as contracted pelvis, it should be done under local or even spinal anesthesia, preferably local.

The treatment usually employed here for eclampsia consists of isolation of the patient in a quiet, dark room, absolutely no visitors, a special nurse if possible, limitation of the external stimuli to an irreducible minim. The Stroganoff routine of giving sedatives is followed, i.e. one-fourth grain of morphine on admission and 30 grains of

chloral, rectally, one hour after admission, one-fourth grain of morphine four hours after admission, 30 grains of chloral, rectally, 7 hours after admission and repeated 13 hours after admission, and then 21 hours after admission. If the patient is showing oliguria, either magnesium sulphate, intravenously, as previously described, or 50% glucose, intravenously, are used as a diuretic and dehydrating agent. The glucose is probably slightly more efficient as a diuretic. If the patient is in labor, she is allowed to continue to full dilation and then if there is any delay in the second stage she is delivered by forceps if the head is below the spines or by version if above the spines. If the patient is not in labor, it may be induced medicinally or by bougies or bag after she has been gotten into a better condition by rest and sedatives, or if she has not improved after 24 hours observation. If the blood pressure is high or rising rapidly, or the patient is showing a rapid series of convulsions, a venesection of 700 to 1,000 cc. of blood is done. If pulmonary edema develops, a venesection is usually done. Continuous bronchial suction has also been recommended in the treatment of pulmonary edema and has been used in the General Hospital but we have not had occasion to use it here. When the patients are in coma, fluids and food by mouth should be withheld to prevent aspiration and the possibility of later development of pneumonia. Postpartum eclampsia is treated by isolation, elimination of stimuli, and the Stroganoff regime of giving sedatives, with intravenous magnesium sulphate or glucose, and venesection, if necessary. The intake and output should be very carefully watched on any patient with toxemia, especially in eclampsia, as a fluid output greater than the intake is an excellent prognostic sign. Conversely, an output much lower than the intake shows that the patient is not improving and is probably getting worse.

Summary

1. Eclampsia is an acute toxemia occurring in the pregnant, parturient or puerperal woman usually accompanied by clonic or tonic convulsions followed by

more or less prolonged coma.

2. The various observers give an average of about 1% of all obstetrical hospital patients suffering from eclampsia. If both home and hospital obstetrical cases are considered, the frequency would certainly be much lower, Williams states that eclampsia occurs once in every 500 labors. It is known to be more frequent in primipara than in multipara. Hinselmann stated that about 1.5% of all cases of eclampsia occur in primiparae and about 0.25 of 1% in multiparae. It is known to be more frequent in multiple pregnancies, Hinselmann stating that it occurs five times as frequently in multiple pregnancies as in single pregnancies. It may recur in the subsequent pregnancies of the patient but it is unlikely to do so.

3. The etiology of eclampsia is unknown. Many theories have been advanced as to its cause but none of these have received consideration to warrant reproducing them in this paper.

4. The chemistry in the normal pregnant woman shows some changes. In brief there is a positive nitrogen balance in the last half of the pregnancy, there being a relative increase in the serum globulin and actual increase in the serum fibrinogen. The nonprotein nitrogen shows no change. The total nitrogen excretion in the urine is decreased in the latter half of the pregnancy. There is an increase in lipoids in the last half of pregnancy and probably an increase in the blood lactic acid. Calcium, phosphorus and iron which the fetus requires are taken from the mother to a large extent and both the blood calcium and blood phosphorus are known to be lower in pregnancy than in a normal non-pregnant woman. Carbon dioxide combining power of blood is lower in pregnancy. P_H of the blood is normal. The serum base is said to have decreased about 5%. The alveolar carbon dioxide is lowered as early as the second month of pregnancy. Toxemias of pregnancy show many of these chemical changes to be accentuated. The urea nitrogen in the urine is usually lower and the ammonium nitrogen is elevated. Occasionally, acetoneuria is

found and proteinuria of 40 grams per liter is the rule in toxemia although, of course, the hither values are uncommon. Hyperglycemia has been reported by Stander. There is also decreased carbon dioxide combining power of the blood, elevated lactic acid and increased chlorides, especially in the presence of edema. The uric acid in the blood is increased, usually to 5 mgs. per 100 cc. or over.

4. Eclampsia itself is usually preceded by a toxemia of pregnancy called "pre-eclampsia" which is characterized chiefly by elevation of blood pressure, albuminuria, spasm of the retinal arteries, usually some retinal edema and various subjective symptoms, such as headache, oliguria, edema, epigastric pain and visual disturbances (scotomata, blurring vision or blindness). The pre-eclamptic toxemia is usually discovered during the routine prenatal visits by one of the above signs and the elevation of blood pressure, albuminuria or rapid gain in weight denoting the presence of edema. It is treated by bed rest, restricting fluids, increasing elimination by catharsis and diuresis, and sedatives are required for sleep. Labor may be induced if the patient is not improving or if she is getting worse. Eclampsia itself is characterized by convulsions followed by coma, high blood pressure, marked albuminuria, usually retinal edema, frequently retinal hemorrhages and uncommonly by rather marked edema of the patient, although some eclamptics do not show edema. In the treatment of eclampsia itself, conservative measures are much preferable to radical. There are four methods of conservative treatment of eclampsia: (1) Dublin method which stresses starvation, gastric lavage and colonic lavage. (2) Magnesium sulphate method which employs 20 cc. of 10% magnesium sulphate, intravenously, every four hours as a sedative and diuretic. (3) Venesection method which employs venesection of 700 to 1,000 cc. of blood. (4) Stroganoff method which yields a very strict regime of sedatives, consisting of morphine and chloral, 6 doses in 6 times together with complete isolation of the patient and small external stimuli. All methods of conservative treatment agree that no attempt in interference be made until the cervix is fully dilated. The treatment used at

the University of Minnesota Hospitals in brief is the Stroganoff routine of sedation, accompanied by venesection in the case of pulmonary edema, rapidly rising blood pressure, and with intravenous hypertonic glucose or magnesium sulphate in the case of oliguria or anuria.

5. The prognosis of eclampsia is grave for both the mother and the child. The fetal mortality varies from 30 to 50%. The maternal mortality varies from around 10% with conservative treatment to around 20% treated radically. The radical treatment usually consists of Caesarean section with toxemia as its only indication. The poor prognostic signs of eclampsia are prolonged coma, pulse 120 and over, temperature of 103 and over, blood pressure over 200 systolic, ten or more convulsions, over 10 grams of albumin to a liter of urine, lack of edema, anuria and edema of the lungs. The reason for the surprisingly better record of conservative over radical treatment is that eclamptic patients stand shock of any kind very poorly. It is well-known in all pregnant women, those with toxemias as well as those with normal pregnancies, that delivery from below is attended with less shock than abdominal section.

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II. CASE REPORTS

In the period from July 1928 through July 1935, there have been 120 cases of pre-eclampsia and 18 cases of eclampsia in the University of Minnesota Hospitals. There were two deaths in this time, neither coming in the series of eclamptic patients. One was a patient who had had a nephrectomy for renal tuberculosis some several years previously and during her first pregnancy developed a pre-eclamptic toxemia. She was admitted to the Hospital in coma due to a cerebral hemorrhage and died in coma. She had no convulsions and could hardly be classified as eclampsia. The primary cause of death in her case was cerebral hemorrhage. The second case was a patient with a rather severe pre-eclamptic toxemia of pregnancy who died of pulmonary edema and who never had convulsions.

CASE 1

..., 36, admitted 1-31-35 and discharged 2-21-35.

History

Gravida vii, Para v. Last menstrual period - middle of June 1934. Expected date of confinement - middle of March 1935. Stated that she had had 2 convulsions in July or August on the same day and had had none since until the morning

of admission. At this time, she noted black spots before her eyes when sewing, felt faint, got up from the machine to lie down, and lost consciousness. A neighbor was called by the children and found her lying on the floor unconscious and foaming at the mouth. She was unconscious for about 20 minutes. Physician was called who found the blood pressure to be 220 and sent her immediately to this hospital. This was the first time a physician was consulted in $1\frac{1}{2}$ years. No toxic symptoms or vaginal bleeding during her previous pregnancies. Tonsillectomy done many years previously. Cholecystectomy and appendectomy done 8 years previously. Patient stated that she had had "fits" for the past 5 years. Husband's description of "fits" sounded like epilepsy. They frequently occurred at night, but she did not bite her tongue during the convulsion.

Physical examination

Temperature 99.6, pulse 98. Conscious, alert and fairly well orientated. Blood pressure 164/84. Heart - negative. Lungs - numerous coarse rales over both lung fields, anteriorly and posteriorly; some dulness and absence of breath sounds in right base. Pelvic - fundus of uterus 2 fingers above umbilicus. Fetal heart, 140, in midline below umbilicus. No epigastric tenderness. No edema of extremities. Impression: Eclampsia plus pulmonary edema with the possibility of epilepsy. Pre-eclamptic toxemia being strongly considered.

Laboratory

Portable chest plate - congestion of both lungs and a high right diaphragm. Urine - 4+ albumin (admission), 2 - 5 white blood cells, epithelium cells, 9 grams albumin by Esbach, specific gravity 1.026. Blood - hemoglobin 62%, white blood cells 21,800. Blood chemistry - urea nitrogen 23, creatinin 1.19, uric acid 3.7, sugar 100, carbon dioxide combining power 50, chlorides 650. Wassermann and Kahn - negative.

Progress

Placed on Stroganoff treatment.

Eye-ground - small flame-shaped hemorrhage along inferior temporal vessels; examination otherwise negative.

Neurological consultation

Eye-grounds - negative. Neurologically, patient was negative. It was the impression that the patient was suffering from idiopathic epilepsy.

Progress

After 24 hours of Strogenoff treatment, the albumin in the urine had decreased to 3+, blood pressure was 152/90. Conservative treatment with bed rest and sedatives for sleep were continued. Blood pressure was quite labile, varying between 150/90 to 174/100.

2-4-35 - Fetal heart which was getting more indistinct could not be heard at all.

2-7-35 - Membranes ruptured spontaneously and shortly afterward a macerated male fetus was delivered. Following delivery, the urine gradually cleared up, showing no albumin from this date on except for a trace on two occasions in the Dispensary after discharge which probably was due to contamination of vaginal discharge.

2-21-35 - Discharged.

4-26-35 - Last seen in Dispensary. Blood pressure 132/92. Urine - negative.

6-28-35 - Seen in Obstetrical Clinic. Urine - negative for albumin. Patient did not wait to be seen so her blood pressure was not taken. Has not been seen since in the Out-Patient Department.

CASE 2

, 30, admitted 11-9-34 and discharged 12-2-34.

History

Gravida i, Para 0. Last menstrual period - 3-2-34. Expected date of confinement 11-15-34. Had slight vaginal bleeding of one day's duration in April. Patient stated that during the past summer she had had heartburn shortly after

the cessation of menses which became increased and worse. Belching gave considerable relief.

11-5-34 - Pain in epigastrium became very severe, radiating from the epigastrium to the upper right quadrant and the angle of scapula, accompanied by nausea. Urine seemed to be decreased in amount at that time and appeared rather dark. There was considerable edema of the ankles a few weeks before admission, pitting in character and increasing. Had a severe headache four days later. No eye symptoms or edema of the hands, etc.

Physical examination

Blood pressure 182/116. Considerable tenderness in epigastric region and upper right quadrant. Palpation of abdomen showed a fetus of about 8 months' duration in the ODA position and the fetal heart was good. A catheterized specimen of urine on admission showed 4+ albumin, 10 grams per liter quantitatively. No rales in the chest. Moderate edema of both legs and some edema of the eyelids. Measurements were adequate.

Laboratory

Blood - hemoglobin 88%, white blood cells 12,200. Blood chemistry - non-protein 28.5, blood urea nitrogen 15.2, uric acid 2.35, sugar 92, carbon dioxide combining power 46, chlorides 680. Wassermann and Kahn tests - negative.

Eye-ground examination - shows slight edema of the retina with considerable spasm of the vessels and compression of the arteriovenous crossings. No hemorrhage or exudates.

Medical consultation

11-9-34 - Diagnosis - probable peptic ulcer with early toxemia of pregnancy. Suggest - high carbohydrate, low fat, salt free diet, and frequent small feedings of a Bland type of diet. This was carried out. Sedatives were also given. Urine continued to run between 3 and 4+ albumin. Blood pressure averaged between 170 and 180 systolic.

11-12-34 - Patient stated that she was unable to see and could only distinguish light from dark. Shortly after that, she had a typical convulsion. Stroganoff treatment started at once. One-half hour later, had another convulsion. Blood pressure now 216/140. Venesection done, 700 cc. blood taken. Course of intravenous magnesium sulphate started. Blood pressure dropped to 194 after the venesection. 10 P.M. - Taken to delivery room. #5 Voorhees bag inserted into the cervix.

11-13-34 - 1:30 A.M. - Bag expelled. At this time, the fetal heart could not be heard. The patient was delivered of a stillborn infant at 4:15 A.M. Blood pressure on return to bed was 140/80. Following delivery, the blood pressure never went above 134/90. The urinary albumin decreased.

12-2-34 - Discharged.

The urine was entirely negative, having been so for over a week previous to discharge.

4-26-35 - O.P.D. - Blood pressure 130/90. Urine - entirely negative. Dilution-concentration test after discharge - varied between 1.001 and 1.032. P.S.P. - total 65% return in 2 hours.

CASE 3

, 31, admitted 3-15-35 and discharged 4-11-35.

On admission, there was no history available but it was later learned from relatives that the patient had edema of the feet and ankles, extending up to the thighs, for about 2 weeks before admission. She had had epigastric pain for 2 days prior to admission. She had had blurring vision and severe headache shortly before admission. A convulsion occurred on the morning of admission. None of this was known at the time the patient came into the hospital.

History

Gravida ii, Para 0. Four months pregnant at time of admission. Last menstrual

period - sometime in November 1934.

Admitted

3-15-35 - Admitted to medical service because of excruciating epigastric pain. Probable diagnosis of acute cholecystitis was made. 4:30 P.M. - Seen by obstetrical consultant following a generalized convulsion. Blood pressure 190/110. Peripelvic examination - uterus of about 4 months pregnancy, soft. Clinical impression - eclampsia. 5 P.M. - Another convulsion. Venesection done, 900 cc. blood taken.

Laboratory

Urine - 3+ albumin, specific gravity 1.030. Blood - hemoglobin 85%, white blood cells 14,900. Nonprotein nitrogen 32.96, uric acid 5.16, sugar 155, carbon dioxide combining power 56. Wassermann and Kahn tests - 4+; repeated one week later and again found positive. No fetal heart heard.

3-16-35 - Blood pressure 140/96. Conservative treatment continued. Medical consultation - diagnosis - toxemia of pregnancy. Neurological examination - negative. Neurologists state that the convulsions were due to acute hypertensive encephalopathy. Eyeground consultation - normal fundi.

3-19-35 - Blood pressure 120/86. Mentally clear. Urine - trace of albumin. Patient was putting out a large amount of fluid at this time and had no toxic symptoms. She was extremely anxious to carry this pregnancy to term if possible, and therefore watchful waiting was continued.

3-21-35 - Developed an attack of pain between the shoulder blades, finally localized to the lower thoracic vertebra probably due to thoracic arthritis. No fetal heart could be heard at any time.

3-25-35 - Spontaneously aborted a 4-months' fetus, macerated. She improved rapidly.

Discharged

4-11-35 - Urine - negative for a week

preceding discharge.

4-25-35 - Last seen in Obstetrical Clinic. Blood pressure 140/100. Urine - negative. Patient was told to return to the Medical Clinic for a check-up but failed to return.

III. MOVIE

Title: Normal Tissue Cells

Released by: Carnegie Institute of Washington

IV. LAST WEEK

Date: December 12, 1935

Place: Recreation Room,
Nurses' Hall.

Time: 12:15 to 1:16.

Program: Movie - Fighting Fish.
Regional Ileitis.

Present: 96

Discussion: Ed. Semansky
C. H. Wangenstein
L. G. Rigler
H. A. Reimann
Rudolph Koucky

Gertrude Gunn,
Record Librarian.

V. GOSSIP

The Interdepartmental Research Seminar meets tonight at 8 o'clock. The program promises to be of unusual interest.....The film last week with its "that's good -- that's bad" was thought to be too low-brow for the News Reel Theater in Northrop Memorial Auditorium and so it was sent to us. We seemed to enjoy it.....The film today is one of a series to be purchased by the

University for teaching purposes.. All of them have something to do with tissue culture.....Dr. Robert Holmen married Margaret Thorene Saturday, December 7th. They will be at home in St. Anthony Park as Dr. Holmen now practices in St. Paul. It is always good form to say that the man marries the woman but there is some doubt about the truth of the statement. We congratulate them.....Bob Radl is leaving the Health Service to practice in Bismarck, North Dakota with the Quain-Ramstad Clinic in the division of internal medicine. Bob was born and raised in Sleepy Eye, Minnesota and graduated from Minnesota. He formerly practiced in North Dakota, came back to Minnesota for a fellowship, later joining the Health Service staff. He will be missed by his many friends who wish him well in his new location. His previous residence in North Dakota apparently resulted in immunity for the State and his contact with certain members of the Health Service staff made it possible for him to stand almost anything.....It has been suggested that we use the name of some famous pathologist as the code call for postmortem examinations. We now use "all staffmen and clerks report to the Todd Amphitheater at once." To this, we will add "to meet Dr. Rudolph Virchow Koucky (minus the Koucky)." We are indebted to Dr. Raymond Buirge for this suggestion which he obtained while a student at Duke University.....The Minnesota State Medical Association has issued a handbook for debaters on the question of state medicine. Debate coaches complained that they could get plenty of material for the affirmative but practically nothing on the negative except laments. The booklet which is copyrighted will be sent on demand to any student interested in the subject. From time to time physicians are asked where such information can be obtained. Write to the secretary at 11 West Summit Avenue, St. Paul. It is estimated that complete socialization would cost Minnesota \$20,000,000 a year. In England during the past year, \$30,000,000 was spent for physicians' services (average \$1,700 apiece), \$10,000,000 for druggists and drugs supplied by physicians and more than \$23,000,000 for administration.

It is also interesting to note that public health progress under our present system apparently is even more effective. Dean Lyon retires July 1st, 1936. He is reading his last paper before the Council on Medical Education in Chicago in February and the title is "Swans Sing Just Before They Die", and speaking of swans, this is John Hynes' last official contribution to the staff before he leaves January 1st, having completed his fellowship. The other evening at the general faculty dinner, it was brought out that 85 faculty members will retire within the next ten years, many of them holding key positions. Many of the younger men who leave in their quiet way leave a place which is not readily filled. The other evening in talking with some students, it was interesting to note how many of our younger teachers were considered superior in many respects to their elders as far as the appreciation of the students' problems are concerned. The Christmas message contributed by Dean Harold S. Diehl is a continuation of a custom established by Dean Richard Scammon. . . . The many Christmas parties held by the various departments are an indication of the fine morale which prevails in our institution. Dr. Hugh

Cabot's book "The Doctor's Bill" is being widely quoted by debaters and the press as part of the discussion of state medicine. His recent Duluth speech is still causing reverberations. Minnesota State Medical Association will meet in Rochester, May 4, 5, 6, 1936 before the American Medical Association meeting which will be held at Kansas City. Papers and exhibits are wanted at once. The sale of Christmas Seals is going very well. Thank you! Be sure and pay for yours and help the good cause along. Dr. and Mrs. Carl Nurnberger of Dr. Stenstrom's department are leaving for a two years' stay in China in Radiology. In his own quiet way, Stenny has developed a remarkable number of men who are now to be found in responsible positions in various medical centers. This is our last meeting before the Holidays. The next will be Thursday, January 9th, 1936 at the same time and place. We thank all who have helped make these meetings successful. We think we speak for the majority when we say that they have been better than previous years. Your help and cooperation made it possible. We wish you the merriest of holidays and a successful New Year.